IN THE U.S. PATENT AND TRADEMARK OFFICE

In re application of

Didier VIVIEN et al. Conf. 3566

Application No. 10/579,551 Group 1795

Filed July 10, 2006 Examiner Sean CULLEN

PROPULSION CELL FOR A DEVICE IN AN AQUATIC MEDIUM

APPEAL BRIEF

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1. Real party in interest

The real party in interest in this appeal is:

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2. Related appeals and interferences

None.

3. Status of claims

Claims 1-20 are pending in the application and have been finally rejected, from which the appeal is taken.

4. Status of amendments

No amendments to claims have been filed subsequent to the final Office Action of April 28, 2011. The claims at issue are the ones set forth in the Amendment filed February 24, 2011.

5. Summary of claimed subject matter

Independent claim 1: As is set forth in independent claim 1, the present invention pertains to an electrical propulsion cell for the propulsion of a movable device in an aquatic medium (page 3, lines 19-21), formed from at least, in a sealed cell body:

- a first chamber 1 forming a housing including an auxiliary electrical cell 1_0 and a command and control module 1_1 for the electrical propulsion cell (page 3, lines 21-23);

- a second chamber 2 forming a housing including a main electrical cell of the electrochemical type, said second chamber 2 being provided with members 2_1-2_5 for the controlled admission and the regulation of a flow of water from the aquatic medium into said second chamber 2, which forms a reservoir, in order to form, after the command to admit water from the aquatic medium, an electrolyte 2_0 for activating said main electrical cell (page 3, lines 23-30); and

- a third chamber 3 forming a housing including a module for triggering the admission by suction of water from the aquatic medium and the discharge by escape of effluents resulting from the chemical reaction of the main cell into the aquatic medium (page 3, line 31 - page 4, line 2), from an admission valve 3_2 and an escape valve 3_3, respectively, which are mounted in said third chamber, said command and control module 1_1 of the electrical propulsion cell permitting the activation of said auxiliary electrical cell in order to generate electrical energy temporarily during a stage of launching said movable device in an aquatic medium, and the triggering of the admission by suction of water from the aquatic medium and of the discharge by escape of effluents in order to produce electrical energy from said main electrical cell 2 during a cruise phase (page 4, lines 3-12),

where the auxiliary electrical cell 1_0 directly supplies electrical energy to an engine for the propulsion of

the movable device and all members of the electrical cell during the stage of launching (page 7, lines 15-28 and Figure 1A).

6. Grounds of rejection to be reviewed on appeal

The **first** ground of rejection for review on appeal is whether claims 1 and 19 are sufficiently indefinite to support a rejection under 35 USC §112, second paragraph.

The **second** ground of rejection for review on appeal is whether claims 1, 2, 4-8, 10 and 17-20 would have been obvious over TRIBIOLI US 5,506,065 in view of CHARLOT EP 0307292, LEBEN US 4,752,542 and HUNTSMAN US 2003/0167998 sufficient to support a rejection under 35 USC §103(a).

The **third** ground of rejection for review on appeal is whether claim 3 would have been obvious over TRIBIOLI in view of CHARLOT and LEBEN and HUNTSMAN and further in view of MCDERMOTT US 2003/0228516 to support a rejection under 35 USC §103(a).

The **fourth** ground of rejection for review on appeal is whether claim 9 would have been obvious over TRIBIOLI in view of CHARLOT and LEBEN and HUNTSMAN and further in view of TUCKER US 5,733,679 to support a rejection under 35 USC §103(a).

The **fifth** ground of rejection for review on appeal is whether claim 11 would have been obvious over TRIBIOLI in view of CHARLOT and LEBEN and HUNTSMAN and further in view of DIFRANCESCO US 5,199,487 to support a rejection under 35 USC §103(a).

The **sixth** ground of rejection for review on appeal is whether claim 12 would have been obvious over TRIBIOLI in view of CHARLOT and LEBEN and HUNTSMAN and further in view of RIGO US 4,108,736 to support a rejection under 35 USC §103(a).

The **seventh** ground of rejection for review on appeal is whether claim 13 would have been obvious over TRIBIOLI in view of CHARLOT and LEBEN and HUNTSMAN and further in view of SUNSHINE US 6,033,602 to support a rejection under 35 USC §103(a).

The **eighth** ground of rejection for review on appeal is whether claim 14 would have been obvious over TRIBIOLI in view of CHARLOT and LEBEN and HUNTSMAN and further in view of DIFRANCESCO and RIGO to support a rejection under 35 USC §103(a).

The **ninth** ground of rejection for review on appeal is whether claim 15 would have been obvious over TRIBIOLI in view of CHARLOT and LEBEN and HUNTSMAN and further in view of HONER US 3,966,497 to support a rejection under 35 USC §103(a).

The **tenth** ground of rejection for review on appeal is whether claim 16 would have been obvious over TRIBIOLI in view of CHARLOT and LEBEN and HUNTSMAN and further in view of DESA US 2003/0179652 to support a rejection under 35 USC §103(a).

7. Argument

7.1 First Ground: Patentability Under 35 USC §112

The final Office Action asserts that claims 1 and 19 recite "the electrical cell" which has insufficient antecedent basis. However, the preamble of claim 1 recites "an electrical propulsion cell" which provides sufficient antecedent basis. Similarly, "all the members of the electrical cell" hark back to the "electrical propulsion cell" in claim 1.

Admittedly the claim language can be clarified slightly to address these issues (and the claim objections). However, the claims are sufficiently clear that one of skill in the art can understand the scope of the claims.

That is, a claim is indefinite when it contains words or phrases whose meaning is unclear.

However, the failure to provide explicit antecedent basis for terms does not always render a claim indefinite. If the scope of a claim would be reasonably ascertainable by those skilled in the art, then the claim is not indefinite. *Energizer Holdings Inc. v. Int'l Trade Comm'n*, 435 F.3d 1366, 77 USPQ2d 1625 (Fed. Cir. 2006)(holding that "anode gel" provided by implication the antecedent basis for "zinc anode"); *Ex parte Porter*, 25 USPQ2d 1144, 1145 (Bd. Pat. App. & Inter. 1992) **("controlled stream of fluid" provided**

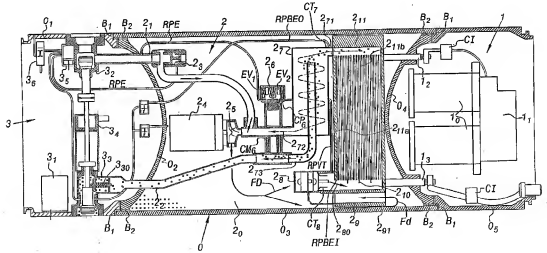
reasonable antecedent basis for "the controlled fluid"). (Emphasis added).

One of ordinary skill would thus find claims 1 and 19 to be clear and definite, and thus within the aegis of 35 USC §112.

This rejection for indefiniteness should accordingly be withdrawn.

7.2 Second Ground: Patentability Over TRIBIOLI, CHARLOT, LEBEN and HUNTSMAN

Claim 1 of the present invention sets forth an auxiliary electrical cell directly supplies electrical energy to an engine for the propulsion of the movable device and all members of the electrical cell during the stage of launching. The auxiliary electrical cell 1_0 can be seen for example in Figure 1a of the application, reproduced below.



More specifically, claim 1 of the present invention recites a propulsion cell having:

1) i) a first chamber comprising a control and command module and an auxiliary cell;

ii) a second chamber comprising a main cell and members for the controlled admission and the regulation of a flow of water; and,

iii) a third chamber comprising a module for the admission of water and the discharge of effluents;

where

2) the control and command module permits the activation of the auxiliary cell and the module for the admission of water and the discharge of effluents; and,

3) the auxiliary cell directly supplying electrical energy to i) an engine for the propulsion of the engine for the propulsion of the device and ii) all the members of the electrical cell during the stage of launching.

About the structural features of the claimed propulsion cell:

Regarding the structural features of the proposed propulsion cell, it should first be noted that the expression "*triggering*" used by the translator to qualify the module housed in the third chamber is perhaps not the optimal translation of the French expression "*amorçage*" used in the

priority French patent application. A better translation is perhaps "*priming*" or "*initiation*".

But notably, ***the structure of the claimed propulsion cell includes three separate chambers***.

In the propulsion cell according to claim 1 of the present invention, whereas the first and third chambers are dry chambers, the second chamber forms a reservoir of electrolyte for activating the main cell.

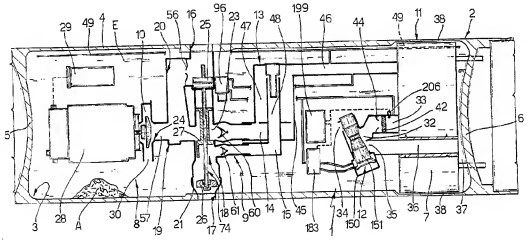
As a consequence, the components housed by the first and third chambers are never in contact with the electrolyte. They are thus protected against corrosion. The claimed propulsion cell may advantageously be reused several times, in particular when it is part of an exercise device. It may also be stocked during a long period of time between two successive uses.

These unexpected advantages are particularly strong in the case of the module for the admission of water and the discharge of effluents, which is specifically located in the dedicated third chamber.

On the contrary, in TRIBIOLI, the mode valve 18, which has both a function of admission of water and discharge of effluents and a function of circulating the electrolyte and separating effluents, is located in the reservoir. The components of mode valve 18 of the propulsion cell of TRIBIOLI, which constitute means for the admission of water and the

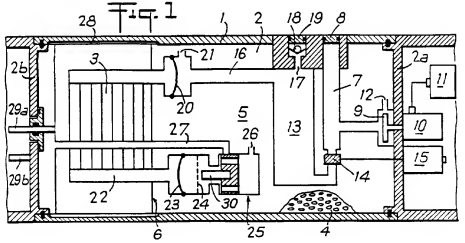
discharge of effluents, are thus in contact with the electrolyte.

Moreover, in TRIBIOLI the auxiliary battery 20 is used only to supply the motor of the pump 10 of the battery 1, as can be seen in Figure 1 of the reference reproduced below.



In CHARLOT, the "*small auxiliary pile 11*" is used only to feed the motor 10 of the pump 9, as can be seen in Figure 1 of the reference reproduced below.

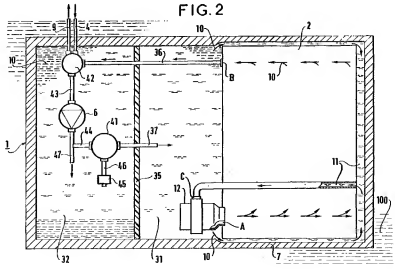
Fig. 1



In CHARLOT, the hull of the device is divided in several compartments. But, the release plugs 8 and 19 located in the wall of the compartment forming the tank of electrolyte does not anticipate a module for the admission of water and the discharge of effluents located in an other chamber than the one comprising the electrolyte, this other chamber being additionally a dry chamber.

In LEBEN, the hull of the device is not divided so that it has only one chamber forming a reservoir, even if this single chamber comprises an internal partition defining two tanks in the reservoir. In addition, in LEBEN Figure 2 (reproduced below), the inlet and outlet 4 and 9, located in the wall of the reservoir, do not teach or infer a module for the admission of water and the discharge of effluents located in another chamber that the one comprising the electrolyte, this other chamber being additionally a day chamber.

FIG. 2



HUNTSMAN does not address at least the deficiencies of the other applied art references discussed above.

Thus, even if the person skill in the art would have combined TRIBIOLI with CHARLOT, LEBEN and HUNTSMAN, he could not have obtained directly this particular feature of the invention as claimed.

Moreover, the present invention provides unexpected advantages that would extinguish any *prima facie* unpatentability that could be alleged.

In the structure of the propulsion cell according to claim 1 of the present invention, ***the function of admission of water and discharge of effluents and the function of circulating the electrolyte and separating effluents are performed by two independent mechanisms.***

Advantageously, the claimed propulsion cell of the present invention is simpler. It is therefore more robust. In addition, the limited number of components inside the second chamber leads to a better stirring of the material to be dissolved in sea water to form the electrolyte. A homogeneous electrolyte is obtained that guarantees steady operating conditions for the main cell. This particular advantageous feature results from tests performed and analyzed by the inventor.

Furthermore, the claimed propulsion cell of the present invention is easier to maintain because the replacement of one component can be easily done without requiring the opening of all the chambers of the propulsion cell and the full replacement of a complex mechanism.

Yet further, one mechanism can be actuated independently from the other.

Finally, the second chamber of the claimed propulsion cell has fewer components. In fact, only the components necessary for the cruise stage are housed in the second chamber. This latter is thus more compact relative to the devices disclosed in the prior art document.

But in TRIBIOLI, the same complex mode valve immersed in the electrolyte performed both the function of admission of water and discharge of effluents and the function of circulating the electrolyte and separating effluents.

But in CHARLOT, the release plugs 8 and 19 are independent from the members for the controlled admission and the regulation of a flow of water (i.e., pump, degasser and valve), but are also independent one from the other. They do not form a module for the admission of water and the discharge of effluents.

But in LEBEN, valve 41 and 42 are the equivalents of the members for the controlled admission and the regulation of a flow of water of the claimed propulsion cell. But, Leben

fails to disclose as such a module for the admission of water and the discharge of effluents.

Thus, even if the person skill in the art would have combined the applied art, he could not have obtained directly this particular feature of the invention as claimed.

Additional unexpected advantages of the present invention arise from ***the admission of water and the discharge of effluents being located in the third chamber***.

This feature is particularly advantageous, because this module has to be checked/controlled during mounting, in particular relative to its sealing properties. The location of this module in a separate dry chamber facilitates tests during mounting. These tests would have been difficult to perform if this module had been kept in the reservoir, as this is the case in TRIBIOLI.

In addition, only the internal conduits of this module are subjected to the immersion pressure. The actuation components are thus not subjected to the immersion pressure. This is of a prime interest for the triggering components of the module, because the fact to protect the triggering components from water, electrolyte and/or pressure, decreases the probability of a false initiation of the propulsion cell. It thus improves the security of the device.

None of the applied art documents suggests such a location for the module performing the admission of water and the discharge of effluents.

A further unexpected advantage of the present invention arises from because module for the admission of water and the discharge of effluents of the claimed propulsion cell is located in the third chamber, ***the inlet and outlet openings of the claimed propulsion cell are located on the wall of the third chamber*** (the "*front collar*" of claim 10).

Consequently, in the claimed propulsion cell, the central shell of the second chamber forming the reservoir is plain and not weakened by openings.

It is to be underlined that the main security concern with such propulsion cell is a false ignition, i.e, an involuntary initiation. Thus, to provide the propulsion cell with a sealed and dedicated electrochemical chamber (the second chamber) improves the security.

This feature is not suggested in the conventional art typified by TRIBIOLI, CHARLOT, LEBEN and HUNTSMAN.

Now consider the control and command of the initiation of the claimed propulsion cell.

According to claim 1 of the present invention, the control and command module permits the activation both of the auxiliary cell and of the module for the admission of water and the discharge of effluents.

But in TRIBIOLI, the displacement of the closure members 25 and 26 is triggered by an arming device 77: when the device is launched, the wire 78 slides out of rod 79 so that the biased force of spring 75 leads to the release of the closure members 25 and 26.

In addition, in TRIBIOLI, battery 29 is not described as activated by electronic control unit 109. The single function operated by electronic control unit 109 is the activation of the solenoid valve 183.

In CHARLOT, no control and command module is disclosed. In particular, element 15 is an actuator of valve 14.

In LEBEN, a control device is disclosed, but only for the control of valves 41 and 42 that are the equivalents of the members for the controlled admission and the regulation of a flow of water of the claimed propulsion cell.

This feature is not suggested in the conventional art typified by TRIBIOLI, CHARLOT, LEBEN and HUNTSMAN.

Now consider the power capacity of the auxiliary cell of the claimed propulsion cell.

According to claim 1 of the present invention, the auxiliary cell supplies electrical energy, during the stage of launching, not only to all the members of the propulsion cell, but also to the propulsion engine.

This feature is particularly advantageous. In fact, the Inventor saw that if the propulsion engine is supplied by the main cell during the stage of launching, the necessary energy drained by the propulsion engine leads to the destruction of the main cell itself.

But in TRIBIOLI, not all the members of the propulsion cell are described as powered by battery 1. TRIBIOLI indicates that only pump 10 is supplied by battery 1.

In CHARLOT, the "*small auxiliary pile 11*" is used only to power the motor 10 of the pump 9.

In LEBEN, there is no auxiliary battery.

HUNTSMAN discloses a system comprising an electricity generating device 102 (of the piezoelectric type), an energy collection control circuitry 104 (array of capacitors), and a power source 106 (a flywheel or a battery). The power source 106 is powered by an electrical charge generated by device 102 and supplied by circuitry 104. The power source 106 is then used to power a power bus 124 to which a propeller motor is connected.

Thus, HUNTSMAN does not disclose an auxiliary power source capable of being used, during the stage of launching, to supply power to a propulsion engine and to all the members of the propulsion cell.

The person skilled in the art would have not considered HUNTSMAN because this document is not in the same technical field, i.e., the field of auxiliary cells.

Even if the person skilled in the art would have considered the teaching of HUNTSMAN, he would have modified the device disclosed in TRIBIOLI by adding a flywheel downstream the main electrical cell, as an energy buffer to regulate the electrical power provided to the propulsion engine.

The skilled person would have not obtained the feature that the auxiliary cell supplies the necessary energy to the engine.

In addition, none of the applied art documents describing the feature that the auxiliary cell is capable of supplying electrical energy to all the components of the propulsion cell during the stage of launching.

Consequently, this feature of the claimed propulsion cell is not obvious relative to TRIBIOLI in view of CHARLOT, LEBEN and/or HUNTSMAN.

Thus in light of the failure to establish *prima facie* unpatentability and the unexpected results, this rejection should be withdrawn.

7.3 Third Ground: Patentability Over TRIBIOLI, CHARLOT, LEBEN, HUNTSMAN and MCDERMOTT

The failures of TRIBIOLI, CHARLOT, LEBEN and HUNTSMAN to establish *prima facie* unpatentability and the unexpected results have been discussed above.

MCDERMOTT at least fails to address the issues discussed above.

Thus in light of the failure to establish *prima facie* unpatentability and the unexpected results, this rejection should be withdrawn.

7.4 Fourth Ground: Patentability Over TRIBIOLI, CHARLOT, LEBEN HUNTSMAN and TUCKER

The failures of TRIBIOLI, CHARLOT, LEBEN and HUNTSMAN to establish *prima facie* unpatentability and the unexpected results have been discussed above.

TUCKER at least fails to address the issues discussed above.

Thus in light of the failure to establish *prima facie* unpatentability and the unexpected results, this rejection should be withdrawn.

7.5 Fifth Ground: Patentability Over TRIBIOLI, CHARLOT, LEBEN, HUNTSMAN and DIFRANCESCO

The failures of TRIBIOLI, CHARLOT, LEBEN and HUNTSMAN to establish *prima facie* unpatentability and the unexpected results have been discussed above.

DIFRANCESCO at least fails to address the issues discussed above.

Thus in light of the failure to establish *prima facie* unpatentability and the unexpected results, this rejection should be withdrawn.

7.6 Sixth Ground: Patentability Over TRIBIOLI, CHARLOT, LEBEN, HUNTSMAN and RIGO

The failures of TRIBIOLI, CHARLOT, LEBEN and HUNTSMAN to establish *prima facie* unpatentability and the unexpected results have been discussed above.

RIGO at least fails to address the issues discussed above.

Thus in light of the failure to establish *prima facie* unpatentability and the unexpected results, this rejection should be withdrawn.

7.7 Seventh Ground: Patentability Over TRIBIOLI, CHARLOT, LEBEN, HUNTSMAN and SUNSHINE

The failures of TRIBIOLI, CHARLOT, LEBEN and HUNTSMAN to establish *prima facie* unpatentability and the unexpected results have been discussed above.

SUNSHINE at least fails to address the issues discussed above.

Thus in light of the failure to establish *prima facie* unpatentability and the unexpected results, this rejection should be withdrawn.

7.8 Eighth Ground: Patentability Over TRIBIOLI, CHARLOT, LEBEN, HUNTSMAN, DIFRANCESCO and RIGO

The failures of TRIBIOLI, CHARLOT, LEBEN and HUNTSMAN to establish *prima facie* unpatentability and the unexpected results have been discussed above.

DIFRANCESCO and RIGO at least fail to address the issues discussed above.

Thus in light of the failure to establish *prima facie* unpatentability and the unexpected results, this rejection should be withdrawn.

7.9 Ninth Ground: Patentability Over TRIBIOLI, CHARLOT, LEBEN, HUNTSMAN, and HONER

The failures of TRIBIOLI, CHARLOT, LEBEN and HUNTSMAN to establish *prima facie* unpatentability and the unexpected results have been discussed above.

HONER at least fails to address the issues discussed above.

Thus in light of the failure to establish *prima facie* unpatentability and the unexpected results, this rejection should be withdrawn.

7.10 Tenth Ground: Patentability Over TRIBIOLI, CHARLOT, LEBEN, HUNTSMAN, and DESA

The failures of TRIBIOLI, CHARLOT, LEBEN and HUNTSMAN to establish *prima facie* unpatentability and the unexpected results have been discussed above.

DESA at least fails to address the issues discussed above.

Thus in light of the failure to establish *prima facie* unpatentability and the unexpected results, this rejection should be withdrawn.

8. Conclusion

The Appellant has demonstrated that the Examiner has failed to successfully allege that the rejected claims are indefinite or *prima facie* unpatentable. It is clear that the propulsion cell of the present invention represents a truly inventive technology, as is also evidenced by the unexpected results. For the reasons advanced above, it is respectfully submitted that all the rejected claims in this application are allowable. Thus, favorable reconsideration and reversal of the rejection under 35 USC §1112 and 35 USC §103, by the Honorable Board of Patent Appeals and Interferences, are respectfully solicited.

The Appeal Brief fee of $620 is being paid concurrently herewith online by credit card.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future submissions, to charge any underpayment or credit any overpayment to Deposit Account

No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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October 26, 2011

Enclosures: Claims Appendix

9. Claims Appendix

1. An electrical propulsion cell for the propulsion of a movable device in an aquatic medium, comprising at least, in a sealed cell body:

- a first chamber forming a housing comprising an auxiliary electrical cell and a command and control module for the electrical propulsion cell;

- a second chamber forming a housing comprising a main electrical cell of the electrochemical type, said second chamber being provided with members for the controlled admission and the regulation of a flow of water from the aquatic medium into said second chamber, which forms a reservoir, in order to form, after the command to admit water from the aquatic medium, an electrolyte for activating said main electrical cell; and

- a third chamber forming a housing comprising a module for triggering the admission by suction of water from the aquatic medium and the discharge by escape of effluents resulting from the chemical reaction of the main cell into the aquatic medium, from an admission valve and an escape valve, respectively, which are mounted in said third chamber, said command and control module of the electrical propulsion cell permitting the activation of said auxiliary electrical cell in order to generate electrical energy temporarily during a stage of launching said movable device in an aquatic medium, and the

triggering of the admission by suction of water from the aquatic medium and of the discharge by escape of effluents in order to produce electrical energy from said main electrical cell during a cruise phase,

wherein the auxiliary electrical cell directly supplies electrical energy to an engine for the propulsion of the movable device and all members of the electrical cell during the stage of launching.

2. The electrical propulsion cell according to claim 1, wherein said auxiliary and main electrical cells are controlled sequentially by said command and control module of the electrical propulsion cell and are connected respectively to a main and secondary electrical energy distribution network.

3. The electrical propulsion cell according to claim 1, wherein said auxiliary electrical cell is formed by a set of thermal cell elements started up by pyrotechnic ignition.

4. The electrical propulsion cell according to claim 1, wherein said members for the controlled admission and the regulation of a flow of water from the aquatic medium into said second chamber comprise at least:

- a motor-driven pump unit, a suction nozzle of said pump unit is connected to said admission valve, and an outlet nozzle of said pump unit delivers the water sucked in from the aquatic medium directly into said second chamber forming a reservoir, in order to form said activation electrolyte and to immerse said main electrical cell in the activation electrolyte;

- a thermostatic valve connected to said main electrical cell, said thermostatic valve regulating admission of said activation electrolyte into said main cell in order to trigger the activation of said main electrical cell by electrochemical reaction; and

- a device for the circulation of the activation electrolyte and the separation of the effluents, said device for circulation of the electrolyte comprising an inlet nozzle connected to the internal cavity of said main electrical cell, containing the activation electrolyte, a first outlet nozzle connected in the vicinity of the suction nozzle of the motor-driven pump and a second effluent outlet nozzle connected to said escape valve located in said third chamber.

5. The electrical propulsion cell according to claim 4, wherein said second effluent nozzle of said device for circulation of the electrolyte is connected to said escape valve located in said third chamber by means of a mode valve

which permits the orientation, in a first position, of the effluents towards the escape valve when the main electrical cell is started up during the launch phase, and, respectively, in a second position, of the activation electrolyte towards the suction nozzle of the motor-driven pump, in order to generate closed-loop circulation of the activation electrolyte in the main electrical cell during the cruise phase.

6. The electrical propulsion cell according to claim 4, wherein said thermostatic valve is formed by a three-way valve receiving:

- a direct flow of activation electrolyte drawn from said second chamber forming a reservoir, and

- a derivative flow of activation electrolyte passing by way of a heat exchanger, the derivative flow being maintained at a substantially constant temperature by said heat exchanger, said thermostatic valve delivering, from said direct flow and said derivative flow at a substantially constant temperature acting as a reference temperature, a flow of thermostatically-controlled activation electrolyte at a substantially constant temperature to the internal cavity of said main electrical cell.

7. The electrical propulsion cell according to claim 4, wherein said main electrical cell of the electrochemical type is an AgO-Al cell.

8. The electrical propulsion cell according to claim 7, wherein said main electrical cell of the electrochemical type is formed by:

- an electrochemical block constituted by a stack of AgO-Al electrochemical couples located in a cavity of a sealed module connected, on the one hand, to said thermostatic valve and, on the other hand, to said device for the circulation of the electrolyte;

- a reserve of anhydrous sodium hydroxide, said electrochemical block and said reserve of anhydrous sodium hydroxide being located in said second chamber forming a reservoir.

9. The electrical propulsion cell according to claim 8, wherein said anhydrous sodium hydroxide reserve is constituted by a mixture of micropellets of anhydrous sodium hydroxide and powder-form stannates charged in bulk into said second chamber forming a reservoir.

10. The electrical propulsion cell according to claim 1, wherein said sealed cell body is formed by an assembly of elements constituted at least by:

- a front collar;

- a front end of the main electrical cell, said front collar and said front end forming said third chamber;

- a central shell;

- a rear end, said front end, said central shell and said rear end forming said second chamber; and

- a rear collar, said rear end and said rear collar forming said first chamber.

11. The electrical propulsion cell according to claim 10, wherein said central shell at least is constituted by a metal alloy which conducts heat, a portion at least of said central shell which is located in the vicinity of said main electrical cell constituting a heat exchanger with said aquatic medium, to form a heat exchanger for at least a derivative flow of activation electrolyte.

12. The electrical propulsion cell according to claim 10, wherein the front collar, the front end of the electrical cell, the central shell, the rear end of the electrical cell and the rear collar are composed of a metal material, an external face thereof which is to be in contact

with the aquatic medium being provided with a protective anti-corrosion layer obtained by hard anodic oxidation.

13. The electrical propulsion cell according to claim 10, wherein an internal face of the front end of the electrical cell, of the central shell and of the rear end of the electrical cell constituting said second chamber forming a reservoir comprise a chemical nickel coating for protection against corrosion by the anhydrous sodium hydroxide.

14. The electrical propulsion cell according to claim 11, wherein an internal face of said central shell, except for the portion forming the heat exchanger, also comprises a thermally insulating coating at the portion forming a reservoir for the activation electrolyte, in order to reduce the cooling of the stored activation electrolyte by heat exchange with the aquatic medium during the cruise phase.

15. The electrical propulsion cell according to claim 10, wherein said sealed cell body is provided with a double sealing barrier with respect to said aquatic medium:

- a first sealing barrier formed by a seal between the aquatic medium and the first chamber, and the third chamber respectively;

- a second sealing barrier formed by a seal between the first and second chamber and the second and third chamber, respectively.

16. The electrical propulsion cell according to claim 10, further comprising:

- a plurality of temperature sensors for flow of activation electrolyte entering and leaving the main electrical cell, in order to be able to regulate the temperature of the flow of activation electrolyte by means of said thermostatic valve;

- a plurality of sensors for sensing the relative pressure of the activation electrolyte in the second chamber forming a reservoir, of the activation electrolyte at an inlet of the device for the circulation of the electrolyte, said sensors of relative pressure delivering a relative pressure value with respect to the pressure outside the sealed cell body;

- a plurality of contacts, a contact for sealing the valve for the admission of water from the aquatic medium, a contact for opening the valve for the admission of water to the sealed cell body.

17. The electrical propulsion cell according to claim 10, wherein the front collar, the central shell and the

rear collar have a substantially cylindrical cross-section of revolution.

18. The electrical propulsion cell according to claim 17, wherein the front collar and the rear collar have a distal end which is open with respect to the front end and the rear end, respectively, of the cell in order to construct said electrical propulsion cell, on the one hand, in the form of an independent module which can be stored as a substantially inert component with its charge of anhydrous sodium hydroxide reserve when the electrical propulsion cell is not mounted with the movable device, and, on the other hand, in the form of an element integrated directly in the body of the movable device, the distal end of said front collar being secured mechanically and coupled electrically to an active portion of the movable device and the distal end of the rear collar being secured mechanically and coupled electrically to the propulsive and control rear portion of the movable device in order to constitute an electrical propulsion cell which can be activated as soon as the movable device is launched.

19. The electrical cell according to claim 1 in combination with one of the following movable devices a torpedo, a reconnaissance submarine or a surface device, said

electrical cell providing the supply of power to, the propulsion and the control of said movable device.

20. The electrical propulsion cell according to claim 1, wherein said main electrical cell of the electrochemical type is an AgO-Al cell.

10. Evidence Appendix

None.

11. Related Proceedings Appendix

None.